

The opinion in support of the decision being entered today was
~~not~~ written for publication and is ~~not~~ binding precedent of the Board

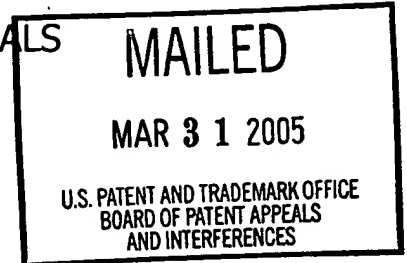
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

~~Ex parte~~ BORIS MASLOV
and ALEXANDER PYNTIKOV

Appeal No. 2005-0375
Application 09/826,422

ON BRIEF



Before THOMAS, RUGGIERO, and NAPPI, ~~Administrative Patent Judges.~~

THOMAS, ~~Administrative Patent Judge.~~

DECISION ON APPEAL

Appellants have appealed to the Board from the examiner's final
rejection of claims 1 through 6 and 11 through 16.

Independent claim 1 is reproduced below:

1. A rotary electric motor comprising:

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a stator configured in the form of an annular ring having a plurality of groups of electromagnet poles, the groups substantially equidistantly distributed along the angular extent of the annular ring, each of the groups comprising magnetic material magnetically isolated and separated from the other groups, the electromagnet poles having pole faces separated from each other by gaps, gaps between pole faces within each group being of a substantially uniform first angular distance; and

an annular rotor, concentric with an axis of rotation and concentric with the annular stator to form a radial air gap therebetween comprising a plurality of permanent magnets substantially equidistantly distributed with alternating magnetic polarity along the angular extent of the air gap and separated from each other by gaps of a second angular distance different from the first angular distance, the permanent magnets having a common magnetic return path;

wherein each group of electromagnet poles comprises windings that are switchably energized from driving electromotive interaction between the stator and rotor.

Heidelberg et al. (Heidelberg)	4,754,207	June 28, 1988
Hancock et al. (Hancock)	5,015,903	May 14, 1991
Forbes et al. (Forbes)	5,918,360	July 6, 1999
Acquaviva	6,181,035 (Filing date Sept. 29, 1994)	Jan. 30, 2001
Li	6,278,216 (Filing date June 7, 1999)	Aug. 21, 2001

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All claims on appeal stand rejected under 35 U.S.C. § 103. As to claims 1, 3, 5, 6 and 11, the examiner relies upon Heidelberg in view of Acquaviva, with the addition of Li as to claim 4. Claims 2 and 12 stand rejected based upon the combined teachings of Heidelberg, Acquaviva and Hancock. Claims 13-15 stand rejected under 35 U.S.C. § 103 as obvious over the collective teachings and showings of Heidelberg in view of Acquaviva, further in view of Forbes, with the addition of Li as to claim 16.

Rather than repeat the positions of the appellants and the examiner, reference is made to the brief and reply brief for the appellants' positions, and to the answer for the examiner's positions.

OPINION

Since we cannot conclude that the artisan ~~would have found obvious~~ the subject matter of independent claim 1 on appeal in light of the teachings and showings of Heidelberg in view of Acquaviva, we reverse the rejection of all claims on appeal under 35 U.S.C. § 103.

The examiner's position at page 4 of the answer essentially concludes that Heidelberg does not show a feature of the permanent magnets of the rotor in the angular rotor clause of claim 1 on appeal. They are stated to be separated by gaps, where this gap distance is ~~different from~~ the gap distance between the magnetic poles of the stator clause of claim 1 on appeal.

The figure 1 and figures 5a embodiments in Heidelberg show that the permanent magnets 8 of rotor 4 have no gaps between them, and it is stated at column 4, lines 53-55 that "permanent magnets 8 are directly adjacent each other in the peripheral direction" at least in the figure 1 embodiment. On the other hand, the figure 3 showing in Heidelberg contrasts the showing in figure 1. In figure 3 the rotor 4 is said to have electromagnets 12 thereon, whereas the rotor 4 has permanent magnets 8 thereon in figure 1. Additionally, the stator 6 in figure 3 has permanent magnets 8 thereon, whereas the stator 6 in figure 1 has electromagnets 12 thereon. The teachings at column 7, lines 42 and 43 also essentially make figure 3 similar to the structure of figure 1 where it is stated that

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"permanent magnets 8 may also be provided on rotor 4 and electro-magnets 12 on stator 6" in presenting an alternative embodiment of the figure 3 showing in Heidelberg.

There are teachings in the discussion at columns 2 and 3 of Heidelberg, the discussions of figure 1 at column 4 and the discussions of figure 3 at column 6 where the actual pole distances 10 and 24 in their respective embodiments are stated to be equal. It appears only to be in the figure 3 showing, however, that "both permanent magnets 8 within groups 34 of permanent magnets and electromagnets 12 have small gaps 38 between them in direction A of relative movement." Column 6, lines 50-53. These gaps 38 are therefore shown to be substantially identical in figure 3 such that the gaps between the permanent magnets in the alternate embodiment of figure 3 ~~are not different~~ from the first gap distance of the stator's electromagnets within each group in Heidelberg. They appear to be equal.

As indicated at the bottom of page 4 of the answer, Acquaviva does show that the gap distance S between permanent magnets 40 is different

from the gap distance between the electromagnets at the bottom of figure 3 on the stator 10 which shows a stator gap distance 15.

We are not persuaded by Acquaviva and the examiner's reasoning urging combinability, and therefore the obviousness of the subject matter of claim 1 on appeal, based on Acquaviva's showings and the examiner's rationale of using the teaching of figure 3 of Acquaviva in the teachings and showings of Heidelberg to make the respective gap differences in the groups of electromagnets in Heidelberg different from the gaps between the permanent magnets of the rotor for the purpose of reducing cogging torque as discussed in Acquaviva. Just because the respective references may be in the same field of endeavor as argued by the examiner does not automatically lead to the conclusion that it would have been obvious to the artisan to have utilized the respective teachings of the two references in the same combination.

Appellants' arguments at pages 9-12 of the principal brief on appeal in effect generally point out the specific structural relationships among all the parts in the Heidelberg arrangement including the grouping of a

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selected number of electromagnets together with the same gap distance within the stator and having a separate gap distance between the groups, whereas the motor in figure 3 of Acquaviva has equally spaced gaps between the permanent magnets in the rotor, and equally spaced gaps between the electromagnets in the stator.

There does appear to be some measure of criticality within the structural arrangement of each reference that needs to be appreciated from an artisan's perspective. The abstract of Acquaviva, for example, also illustrates that the ability to improve cogging torque in that reference relates to an interrelationship of at least three factors.

It appears to us that the precise nature and extent of the variables involved in the structure of the two references relied upon leads us to conclude that the examiner's basic line of reasoning is based upon an obvious to try rationale. There is no recognition in Heidelberg that there is any cogging torquing problem and we cannot determine from the general statements in Acquaviva that this would have been the case in Heidelberg

such as to suggest to the artisan that it would have been obvious to have corrected any such problems in Heidelberg according to the teaching value of any one or all of the three variables in Acquaviva to improve or otherwise minimize cogging torque problems. As such, the Acquaviva teachings provide to the artisan only general guidance to a problem that may or may not exist in Heidelberg's motor. Acquaviva provides evidence that there are a plurality of conditions under which the cogging torque may be improved, yet it is extremely problematic as to what the effect any teachings of Acquaviva would have on the relatively specifically defined relationships of the parts making up the motor in Heidelberg. All of these considerations are involved in the nature of an obvious to try rationale as noted in In re O'Farrell, 853 F.2d 894, 903, 7 USPQ2d 1673, 1781 (Fed. Cir. 1998).

Another manner in which to characterize the examiner's motivation analysis is that it appears to be based upon hindsight since from our view

of the evidence, there appears to be no basis to question the integrity of the Heidelberg motor from an artisan's perspective such as to suggest it be modified according to the teachings of Acquaviva to eliminate or otherwise minimize any problems associated with it.

In a nutshell, we find insufficient evidence according to the combination of Heidelberg and Acquaviva that would lead us to conclude that the artisan ~~would have found obvious~~ the subject matter of independent claim 1 on appeal based upon the combined teachings and showings of Heidelberg in view of Acquaviva. We remain unconvinced that the artisan would have done anything to modify Heidelberg's structure of his motor according to the teachings of Acquaviva according to the examiner's rationale. On the other hand, it does appear that the structure of Heidelberg ~~could have been rendered obvious or could have been modified~~ according to Acquaviva's teachings, but we cannot independently conclude that the artisan ~~would have found it obvious~~ in light of Heidelberg

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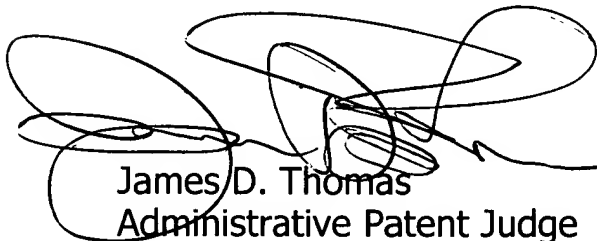
and Acquaviva to have done so within 35 U.S.C. § 103. To us the examiner's position of the combinability of Heidelberg and Acquaviva is speculative at best, is based on hindsight at its worst, and plainly at a minimum based on a prohibited obvious to try analysis.

Therefore, the first stated rejection of independent claim 1 and its dependent claims 3, 5, 6 and 11 is reversed. We reach a similar conclusion with respect to each of the other four separately stated rejections under 35 U.S.C. § 103 of the remaining claims on appeal since the additional applied prior art is not argued and does not appear to cure the deficiencies with respect to the combination of Heidelberg and Acquaviva.

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In view of the foregoing, the decision of the examiner rejecting
claims 1 through 6 and 11 through 16 under 35 U.S.C. § 103 is reversed.

REVERSED


James D. Thomas
Administrative Patent Judge


Joseph F. Ruggiero
Administrative Patent Judge


Robert E. Nappi
Administrative Patent Judge

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